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THE COMPOUND PLANNING GUIDE

How to plan a private compound or underground bunker that
can hold your household on its own for 180 days.

STYRKHOLM

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PLAN IT ON PAPER FIRST.

This guide collects what we publish on styrkholm.com into one place you can print, mark up and keep. Every figure comes from a public source, named where it is used. It is general information, not engineering, legal or financial advice.

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ONE FULL WINTER, ON YOUR OWN.

180

DAYS

Ready.gov asks every household to keep at least three days of supplies. Reported Pentagon planning would have major bases hold for 90 days. A family cannot be resupplied like a base, so we design every compound to hold its household for 180 days: a full winter with no deliveries, utilities or outside services.

WHAT 180 DAYS MEANS FOR ONE PERSON

SYSTEM	MINIMUM FOR 180 DAYS	BASIS
Water	180 gallons for drinking and basic sanitation	Ready.gov: 1 gallon a person a day, as a minimum
Food	About 360,000 calories	2,000 calories a day; more for physical work and cold
Power	Sized for the shortest days of December	Solar output falls sharply in winter; see Section 3
Heat	Two independent sources and a season of stored fuel	So no single failure leaves the house cold
Medicine	Six months of prescriptions, cold storage on protected power	Talk with your physician about extended supplies

Our free **Days of Independence** and **Self-Sufficiency** calculators at styrkholm.com/tools run these numbers for your household. Most families find that water runs out first, because the well pump depends on the grid.

GROUND WORTH HOLDING.

Water decides more than anything else. In much of the West it is a right you secure before you build. The states where we build:

STATE	WATER LAW	PROPERTY TAX	INCOME TAX	PEOPLE / SQ MI	HOLM RATING
Utah	Prior appropriation	0.48%	4.50% flat	39.8	Recommended
Idaho	Prior appropriation	0.50%	5.30% flat	22.2	Recommended
Montana	Prior appropriation	0.61%	4.70% to 5.65%	7.4	Recommended
Wyoming	Prior appropriation	0.53%	None	5.9	Recommended
Colorado	Prior appropriation	0.50%	4.40% flat	55.7	Strong
Texas	Rule of capture	1.40%	None	111.6	Selective
Tennessee	Riparian	0.52%	None on wages	167.6	Strong

BEFORE YOU BUY, CONFIRM

- ☐ A secured water right or a permitted well in a basin that is not over-committed
- ☐ Year-round road access, open in January
- ☐ Out of floodplains, away from mapped faults and heavy wildland fuel
- ☐ A county whose rules allow what you intend to build
- ☐ Soil and groundwater that suit building below grade

Tax Foundation, Congressional Research Service and 2020 Census data, as summarized in our state land guides for 15 states at styrkholm.com/land.

WHAT GOES UNDERGROUND.

The hazards of living below grade are rarely dramatic. They are stale air, radon, condensation and groundwater, and they are all designed out or designed in.

SYSTEM	THE BENCHMARK	THE STYRKHOLM SPEC
Structure	Engineered for soil and groundwater loads	Designed by a licensed engineer for the site's soil, depth and water table, with stamped drawings. No shipping containers.
Fresh air per person	FEMA historic minimum 3 cfm; Oak Ridge guidance about 40 cfm in hot weather	Ventilation sized for hot-weather occupancy at about 40 cfm per person, filtered.
Air filtration chain	Swiss shelters: blast valve, pre-filter, blower, NBC filter, overpressure valve, airlock	The complete chain, HEPA plus impregnated carbon, positive pressure, airlock, and a hand-crank backup for the blower.
Carbon dioxide	About 1 cfm per person minimum even in cold weather	Continuous CO2 monitoring with alarm in every occupied below-grade room.
Radiation shielding	Each 2.2 to 2.4 in. of concrete, or 3.3 to 3.6 in. of packed earth, roughly halves gamma radiation	Sleeping and living quarters designed for a protection factor of about 1,000, roughly ten halving thicknesses of mass.
Radon	EPA action level 4 pCi/L; consider fixing from 2 pCi/L	Sub-slab mitigation built in, with every below-grade space tested after occupancy and brought below 2 pCi/L.
Moisture	Ground holds about 40 to 70°F year round, so condensation is the common failure	Membrane waterproofing, perimeter drainage and dehumidification sized for full occupancy.
Water	Ready.gov: 1 gallon per person per day for at least 3 days	A permanent source with secured water rights, off-grid pumping and treatment, plus stored reserve for the full 180 days at minimum use.
Backup fuel	NFPA 110: fuel-quality test at least annually; diesel about 6 to 12 months	Propane where long storage matters; diesel tested and treated on an NFPA 110 schedule, with tank capacity tied to days of runtime.

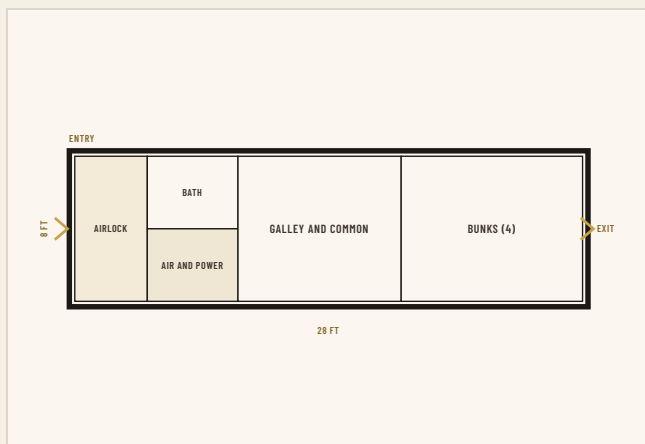
Benchmarks from Swiss civil protection, FEMA, the EPA, NFPA 110, Oak Ridge National Laboratory and Ready.gov, as published in full at styrkholm.com/the-styrkholm-spec.

CONCRETE, STEEL, PIPE OR PLASTIC.

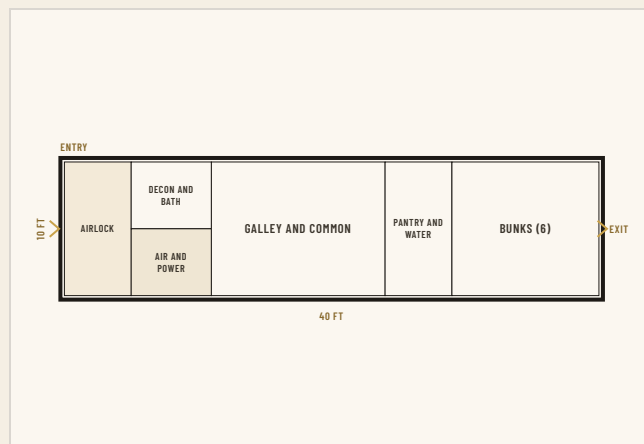
METHOD	HOW IT CARRIES THE EARTH	WHAT TO WATCH FOR
Cast-in-place reinforced concrete	Rigid structure engineered to ACI 318, with 3 in. of cover over the steel where concrete is cast against earth.	Condensation inside, and sulfate or acidic soils outside. Needs membrane waterproofing and dehumidification.
Precast concrete	Factory-cast box sections and vaults, made to standards such as ASTM C1577 and set by crane.	The joints. Every seam between sections must be sealed and waterproofed.
Insulating concrete forms	A concrete core poured inside stay-in-place foam forms, designed under the residential code or ACI 318.	No backfill until the floor or roof bracing is in place, and waterproofing that will not dissolve the foam.
Corrugated steel pipe	A flexible structure that carries load by bearing on compacted backfill around it.	Backfill compaction, corrosion at the floor and from aggressive soils, and condensation.
Welded plate steel	A steel box or cylinder engineered for the burial depth.	Corrosion. Buried steel tanks must be coated with cathodic protection, or clad, by federal rule.
Fiberglass or HDPE	A flexible shell that relies on stiff, compacted soil around it; plastic creeps under long-term load.	Flotation in wet ground, which requires anchoring, and long-term deflection.
Shipping container	Built to carry loads through its corner posts, not its roof or side walls.	Roof and wall failure under soil load, corrosion and condensation. We do not bury them.

Fallout shielding comes from mass: about 2.4 inches of concrete or 3.6 inches of packed earth halves gamma radiation (Oak Ridge National Laboratory). Whatever the material, keep an underground shelter out of floodwater and anchor it against groundwater (FEMA P-320).

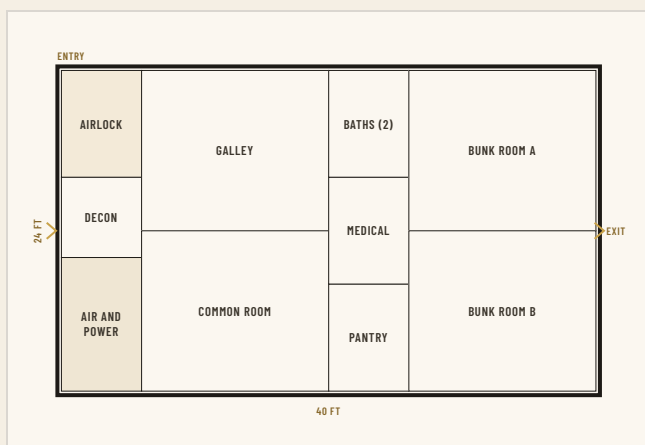
FOUR REFERENCE DESIGNS.



Haven 4 • Compact shelter • 224 sq ft • sleeps 4 • 160 cfm filtered air
• 120 gal stored water
Published range \$67,200 to \$268,800

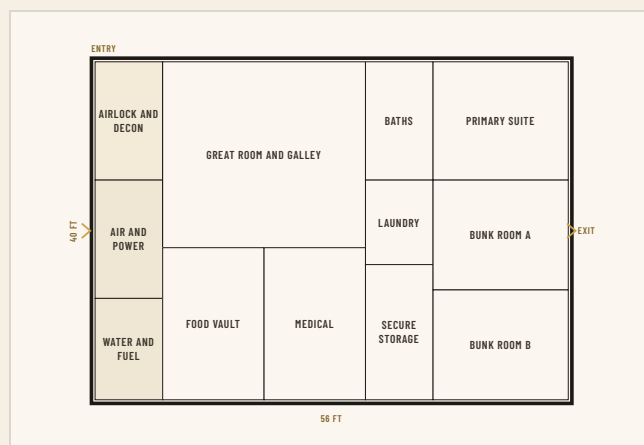


Hold 6 • Family bunker • 400 sq ft • sleeps 6 • 240 cfm filtered air •
180 gal stored water
Published range \$120,000 to \$480,000



Hold 12 • Extended family • 960 sq ft • sleeps 12 • 480 cfm filtered air
• 360 gal stored water
Published range \$288,000 to \$1.15 million

Reference layouts; every bunker is engineered for its site. Ranges apply published figures of \$300 to \$1,200 a square foot (ThePricer), before land and site work.



Estate 24 • Compound quarters • 2,240 sq ft • sleeps 24 • 960 cfm
filtered air • 720 gal stored water
Published range \$672,000 to \$2.69 million

TWELVE QUESTIONS FOR ANY BUILDER.

Ask every builder, including us. Write their answers in the margin.

- ☐ What will you learn about the soil and groundwater before you design?
- ☐ Who engineers the structure for buried loads, and will the plans carry a licensed engineer's stamp?
- ☐ How will the structure stay dry, and how will you control humidity?
- ☐ What is the fresh-air rate per person, in cfm, at full occupancy in summer?
- ☐ What is the complete air-filtration chain, from intake to exhaust?
- ☐ How is carbon dioxide measured and managed?
- ☐ What protection factor does the design give against fallout, and how was it calculated?
- ☐ Will you test for radon and build in mitigation?
- ☐ Where does the water come from after the tanks run out?
- ☐ What fuel runs your backup power, and how is it tested and rotated?
- ☐ Where do the batteries live in January?
- ☐ What standard is the safe room built to?

WHAT IT COSTS.

Published ranges for each part of a compound. Every estate is priced individually in design.

Land	USDA 2025 average farm real estate values in the Mountain West range from about \$725 an acre in New Mexico to \$4,580 in Idaho. Recreational, scenic and homesite land with water, access and views sells well above agricultural averages.
Primary residence	Custom homes in Utah run roughly \$280 to \$600 a square foot before land and site work, and estate-level finishes, structure and engineering for hardening go beyond that range.
Below-grade quarters	Published ranges for custom underground construction run about \$300 to \$600 a square foot, and finished, hardened ICF construction about \$800 to \$1,200. Filtration, blast protection, finish and depth move the number.
Water	Complete residential wells commonly cost \$25 to \$65 a foot, more on remote or rocky sites. Deep Mountain West wells, cisterns, treatment and pumps on protected power add to that.
Power	Off-grid solar systems commonly run \$40,000 to \$80,000 for 5 to 10 kW, and battery storage about \$1,440 per kWh in the Mountain West, before any incentives. Estates need far larger systems plus backup generation and fuel storage.
Food and grounds	Residential greenhouses run about \$25 to \$45 a square foot for barn-style and solar designs. Orchards, gardens, irrigation and a root cellar are designed with the estate.
Perimeter and protection	Reinforced fencing, gates, a gatehouse, surveillance and NBC filtration are engineered for each site and priced in design. They are not commodities.

JUST THE BUNKER

Complete Styrkholm bunkers, delivered, installed, connected, commissioned and with your household trained, start at \$143,900 with every required system. Price yours at styrkholm.com/build-your-bunker.

WHERE DO YOU STAND TODAY?

Answer honestly. Each yes is a layer already in place.

- ☐ You have a property you could reach on a single tank of fuel
- ☐ It draws its own water: a well, spring or stored reserve
- ☐ It can power itself for two weeks without the grid
- ☐ Ninety days of food is stored there for everyone you would bring
- ☐ A secured perimeter with one controlled point of entry
- ☐ Protected space below grade, or a reinforced safe room
- ☐ Everyone in your household knows the plan and the route
- ☐ The land could grow food next season

THE ORDER OF WORK

Find Before anything is drawn, we find ground worth holding and walk it with you.

Design One master plan for the whole estate, above and below grade, so every system serves the others.

Build Our crews build every layer under one contract and one point of accountability.

Hold We commission every system, prepare your household and remain on call.



BEGIN THE CONVERSATION.

Every Styrkholm project starts with a private conversation about your household, your land and how long you want to hold. There is no obligation, and client names and locations are never published.

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